AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method of withdrawal and return of blood in a patient undergoing extracorporeal blood treatment therapy comprising:

a. inserting a dual lumen catheter into a surface peripheral vein in an extremity of the patient;

b. advancing the catheter into a venous tree of the patient towards the heart a distance in a range of 20 centimeters (cm) to 45 cm;

c. positioning a distal tip of the catheter beyond venous flappers in the venous tree;

d. drawing blood from the catheter through an inlet opening in the distal tip;

e. applying an extracorporeal treatment to the blood, and

f. returning the treated blood to patient through the catheter.

2. (Original) A method as in claim 1 wherein the distal tip of the catheter is positioned in the venous tree in a shoulder region of the patient.

3. (Original) A method as in claim 1 wherein the treated blood is infused through an opening in the catheter and into the peripheral vein upstream in a blood flow moving towards the catheter tip.

4. (Original) A method as in 1 where the treatment is ultrafiltration and the catheter is positioned in the venous tree for a period of at least 4 hours.

5. (Original) A method as in 1 where the treatment is hemofiltration and the catheter is positioned in the venous tree for a period of at least 4 hours.

6. (Original) A method as in 1 where the treatment is dialysis and the catheter is positioned in the venous tree for a period of at least 4 hours.

7. (Original) A method as in 1 where the treatment is selected from a group consisting of: collecting platelet, collecting peripheral blood stem cells and performing a therapeutic aphaeresis procedure.

8. (Original) A method as in claim 1 where the catheter is inserted a length in a range of 20 cm to 45 cm into the peripheral vein and venous tree, and the treated blood is infused through an opening in the catheter at least 10 centimeters (cm) from an inlet to the catheter.

9. (Original) A method as in claim 1 where the insertion of the catheter is at an elbow level of an arm of the patient.

10. (Original) A method as in claim 1 wherein the catheter has a constant outside insertable diameter in a range of 1.5 millimeter (mm) to 2.3 mm.

11. (Original) A method as in claim 1 wherein the catheter has a total insertable tube length of no greater than 45 cm.

12. (Original) A method as in claim 1 wherein the dual lumen catheter further comprises a withdrawal lumen having a first cross-sectional internal lumen area along a dual lumen section and a second cross-sectional internal lumen area along a single lumen section distal to the dual lumen section, and wherein the second cross-sectional internal lumen area is at least 10% greater than the first cross-sectional internal lumen area.

13. (Original) A method as in claim 1 wherein the catheter has an infusion internal cross sectional lumen area in a range of 0.5 to and including 0.8 mm^2.

14. (Original) A method as in claim 1, wherein the catheter is inserted into a native peripheral vein.

15. (Original) A method as in claim 1 wherein the treated blood is returned at a location in the peripheral vein upstream in the venous tree of the position of the inlet opening into which blood is drawn, and further comprising recirculating a portion of the treated blood returned through the catheter by drawing the treated blood into the inlet opening as the treated blood flows through the venous tree and to the inlet opening.

16. (Original) A method as in claim 15 where an amount of recirculation is no greater than 33% of an amount of blood drawn into the inlet opening.

17. (Original) A method as in claim 1 wherein the treated blood is discharged from the catheter through a sidewall opening in the catheter.

18. (Original) A method as in claim 1 wherein the treated blood is discharged from an opening in the catheter and the opening is at least 10 cm upstream of the catheter from the inlet opening.

19. (Original) A method as in claim 1 wherein the treated blood is discharged from an opening in the catheter and the opening is at least 3 cm and no more than 10 cm distal from a catheter hub.

20. (Original) A method as in claim 1 wherein treated blood is discharged from an opening in an infusion lumen of the catheter and the opening has a cross sectional area at least equal to a cross sectional area of the infusion lumen in an insertable section of the catheter.

21. (Original) A method as in claim 1 wherein treated blood is discharged from a plurality of openings in an infusion lumen of the catheter and the openings have a combined cross sectional area at least equal to a cross sectional area of the infusion lumen in the insertable section of the catheter.

22. (Original) A method as in claim 1 wherein treated blood is discharged from an opening in an infusion lumen of the catheter and a non-discrete mark is located on said catheter within 0.5 cm of the opening.

23. (Original) A method as in claim 1 further comprising applying a reduced or negative pressure to a withdrawal lumen of the catheter to draw blood into the input opening.

24. (Original) A method as in claim 23 wherein the reduced pressure draws blood from the reservoir of blood in the patient upstream through the vein into the withdrawal catheter.

25. (Original) A method as in claim 1 further comprising applying a positive pressure to an infusion lumen of the catheter to move the treated blood and return the treated blood to the patient.

26. (Original) A method as in claim 1 where the extracorporeal treatment step further comprises: filtering blood drawing through the catheter to separate excess fluid from the blood, wherein filtered blood is the treated blood to be returned to the patient.

27. (Original) A method as in claim 26 wherein blood flow rate through a filter is less than two percent of a total cardiac output of the patient, and a flow rate of the excess fluid removed from the blood is at a rate no greater than 1.0 liters per hour.

28. (Original) A method as in claim 1 wherein a rate at which blood is withdrawn from the patient is no greater than 40 milliliters per minute.

29. (Original) A method as in claim 26, wherein a rate at which blood is withdrawn from the patient is in a range of 40 millimeters to 60 milliliters per minute, and a rate of removal of the excess fluid is at a rate no greater than 1.0 liters per hour.

30. (Original) A method as in claim 26, wherein the filtration is ultrafiltration.

31. (Original) A method as in claim 1, wherein the surface peripheral blood vessel is a basilic vein.

32. (Original) A method as in claim 1, wherein the surface peripheral blood vessel is a cephalic vein.

33. to 69. (Withdrawn)